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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kun-Hong Chen

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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP
100 GALLERIA PARKWAY, NW
STE 1750
ATLANTA, GA 30339-5948

EXAMINER

CHU, CHRIS C

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/780,932

Applicant(s)

CHEN, KUN-HONG

Examiner

Chris C. Chu

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 7 and 14 - 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 - 19 is/are allowed.
- 6) ☒ Claim(s) 1 - 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on March 14, 2006 has been received and entered in the case.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the acknowledged prior art of Figs. 1 – 2E in view of Ishii et al. (U. S. Pat. No. 6,934,000).

Regarding claim 1, the acknowledged prior art discloses in e.g., Fig. 2E an interconnect structure, comprising:

- a substrate (100; page 2, line 15);
- a plurality of first metal lines (110; page 2, line 12 and see Fig. 1) disposed on the substrate;
- a first insulating layer (120; page 2, line 28) disposed on the substrate, covering the plurality of first metal lines (see e.g., Fig. 1 and Fig. 2E);
- a plurality of second metal lines (130; page 2, line 13 and see Fig. 1) disposed on the first insulating layer;

Art Unit: 2815

- a second insulating layer (140; page 3, line 4) covering the plurality of second metal lines;
- a plurality of ITO (indium tin oxide 162; page 2, line 17 and see Fig. 1) wirings, each ITO wiring electrically connecting one of the plurality of first metal lines and one of the second metal lines (see Fig. 2E) respectively; and
- a passivation structure (151 and 152; page 2, lines 17 and 18) disposed on the second insulating layer (140).

However, the acknowledged prior art does not disclose the passivation structure having surrounding walls. Ishii et al. teaches in e.g., Fig. 1A – Fig. 1B a passivation structure (PSV; column 8, lines 7 – 9) having surrounding walls (the walls of GTM that is formed on the PSV by the ECO; see e.g., Fig. 1A). It would have been obvious to one of ordinary skill in the art at the time when the invention was made to apply the surrounding walls of Ishii et al. into the structure of the acknowledged prior art as taught by Ishii et al. to sufficiently obviate the occurrence of the electrolytic corrosion (column 10, lines 19 – 24). Furthermore, the limitation “to isolate each of an ITO wirings” is intended use or functional language that does not differentiate the claimed structure over the acknowledged prior art and Ishii et al. Because the surrounding walls of Ishii et al. capable of performing the intended use or the functional limitation in the combined structure of the acknowledged prior art and Ishii et al.

Regarding claim 2, the acknowledged prior art discloses in e.g., Fig. 2E the substrate (100) being a TFT-array substrate (page 2, line 15) for a flat display panel (page 1, line 7).

Regarding claim 3, the acknowledged prior art discloses in e.g., Fig. 2E the plurality of first (110) and second (130) metal lines, the plurality of ITO wirings (162) and the passivation

Art Unit: 2815

structure (151 and 152) being disposed in a non-display area of the TFT-array substrate (page 2, lines 6 and 7).

Regarding claim 4, the acknowledged prior art discloses in e.g., Fig. 2E the plurality of first metal lines (110) being gate metal lines formed simultaneously with gate metal lines in a display area of the TFT-array substrate (page 2, lines 25 – 27).

Regarding claim 5, the acknowledged prior art discloses in e.g., Fig. 2E the plurality of second metal lines (130) being a source/drain metal lines that are formed simultaneously with source/drain metal lines on a display area of the TFT-array substrate (page 3, lines 1 – 4).

Regarding claim 6, the acknowledged prior art discloses in e.g., Fig. 2E each of the ITO wirings (162) comprising a first ITO electrode disposed in the first and second insulating layers (120 and 140) in contact with each of the first metal lines (110), a second ITO electrode disposed in the second insulating layer (140) in contact with each of the second metal lines (130), and an ITO layer (162) connecting the first and second ITO electrodes (see Fig. 2E).

Regarding claim 7, the acknowledged prior art discloses in e.g., Fig. 2C the thickness of the passivation structure (151 and 152) being between 3 and 4 μ m (3.5 μ m; page 3, lines 29 and 130).

Allowable Subject Matter

4. Claims 14 – 19 are allowed.

a. The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or reasonably suggest, either singular or in combination, at least a passivation structure disposed on a second insulating layer,

Art Unit: 2815

wherein the passivation structure comprises a plurality of openings, wherein each of the opening exposes only one of corresponding ITO wirings, and each of the openings is separated from the adjacent opening by a surrounding wall and a plurality of residue ITO rings remains along inner foots of the openings, wherein the residue ITO rings do not extend beyond the openings as set forth in claims 14 – 19.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Response to Arguments

5. Applicant's arguments filed on March 14, 2006 have been fully considered but they are not persuasive.

On page 7, applicant argues “when the references are combined, the conductive oxide film ECO extending on the surrounding walls may electrically connect adjacent conductive oxide film ECO, causing a short. Therefore, the combination of the acknowledged art and Ishii would produce an inoperative combination”. This argument is not persuasive because an assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness. In other words, attorney argument is not evidence unless it is an admission. See MPEP § 716.01(c).

Furthermore, applicant argues “the Office action has failed to cite a proper suggestion or motivation for combining the three references.” This argument is not persuasive. First, the Office action is a combination of two references not three. Second, the asserted motivation (to sufficiently obviate the occurrence of the electrolytic corrosion; column 10, lines 19 – 24), which is established by Ishii et al., is a proper motivation because the ECO layer will cover some portion of the conductive lines 130 and 110 to prevent the occurrence of the electrolytic corrosion on the conductive lines 130 and 110. Thus, the cited motivation in the Office action is a proper motivation for combining the two references.

For the above reasons, the rejection is maintained.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2815

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is 571-272-1724. The examiner can normally be reached on 11:30 - 8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Chris C. Chu
Examiner
Art Unit 2815

c.c.

Tuesday, May 23, 2006



KENNETH PARKER
SUPERVISORY PATENT EXAMINER